ADDENDUM NO. 1

BIDDING AND CONTRACT DOCUMENTS

FOR

SRC NORTH COOLING TOWER REPLACEMENT
PROJECT NO. 957448
CONTRACT NO. 956448-LF-2020-52

December 19, 2019
The following changes, additions, or deletions shall be made to the following documents as indicated for this Project; and all other terms and conditions shall remain the same. Each bidder is responsible for transmitting this information to all affected subcontractors and suppliers before the Bid Deadline.

1. **SPECIFICATIONS TABLE OF CONTENTS**
   Replace existing Specification Table of Contents with the one issued in this Addendum.

2. **SPECIFICATIONS**
   Replace existing Specification Section 23 6500, Cooling Towers, with the one issued in this Addendum.

3. **LIST OF DRAWINGS**
   Replace existing List of Drawings, with the one issued in this Addendum 1.

4. **DRAWINGS**
   Replace existing Sheet M3.0, with the one issued in this Addendum 1.
   Replace existing Sheet M5.0, with the one issued in this Addendum1.
   Add SK-3 included in this Addendum 1.
   Add SK-4 included in this Addendum 1.
   Add USB-015072-54 included in this Addendum 1.
   Add USB-015072-55 included in this Addendum 1.

5. **REQUESTS FOR CLARIFICATION**

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<th>RFI No.</th>
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| 1-1     | **Question:** Reference E0.1, E1.0, E3.1: Are cooling tower vibration switches going to be added to project for VFD/Fan shutdown?  
          **Answer:** Yes, the cooling tower vibration switches are added to the project for VFD/Fan shutdown. Please refer to M5.0 for additional information. |
| 1-2     | **Question:** Reference E0.1, 1.0, 3.2: During job walk we did not see room below cooling tower – is it safe to assume vacated electrical conduits thru roof can be used for added cooling tower control points e.g. CWS/CWR temperature sensors?  
          **Answer:** The existing condenser water system contains CWS/CWR temperature sensors. No need to provide additional temp sensors. Please refer to M5.0 for additional information. |
| 1-3     | **Question:** Reference E0.1,E1.0, E3.3: What is the scope for additional wiring to existing DDC panel?  
          -Does existing panel have ample spare I/O for added points?  
          -What type of control panel is it? |
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<tr>
<td>-Do we need to demo and add new? -Is there room in the enclosure for expansion controller if additional I/O is needed for added sensors?</td>
<td></td>
<td>Please refer to the attached photographs for the existing Honeywell control panel and sketches. The contractor shall verify if there are enough I/Os. If there are not enough I/Os, expand controller as needed.</td>
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<tr>
<td>Question: Reference E0.1, E1.0, E3.4: Where are the new CWS/CWR Temperature sensors going to be cut in? Above or below roof closer to panel?</td>
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<td>Answer: The system currently has CWS/CWR temperature sensors. The CWS/CWR sensors on sheet M5.0 have been removed.</td>
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<td>Question: Reference E0.1, 1.0, 3.5: Is there a VFD mounting detail available e.g.anchoring type and or is unitstrut across studs an acceptable method?</td>
<td></td>
<td>Answer: Please see M3.0 for VFD mounting detail for all anchoring information.</td>
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<td>Question: Reference E0.1, E1.0, E3.6: Will seismic engineering be required for and panel or VFD mounting?</td>
<td></td>
<td>Answer: Please see M3.0 for VFD mounting detail for all anchoring information.</td>
</tr>
<tr>
<td>Question: Reference E0.1, E1.0, E3.7: Please send photos of downstairs room Motor Control Center (MCC-A).</td>
<td></td>
<td>Answer: Please refer to the attached photographs of MCC-A.</td>
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<td>Question: Reference E0.1, E1.0, E3.8: Please send photos and location of control panel.</td>
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<td>Answer: Please refer to the attached photograph of the existing Honeywell control panel and attached sketches. The Honeywell control panel is in the mechanical room below the cooling tower yard on the west wall.</td>
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<td>Question: Please confirm per Pre-Bid Job Walk that all crane picks will be between 10 p.m. and 5 a.m.</td>
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<td>Answer: Yes.</td>
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<td>Question: Please confirm who the current building automation system/contractor is for this building</td>
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<td>Answer: The current building automation system/contractor is Honeywell. <a href="mailto:Victor.Wu@honeywell.com">Victor.Wu@honeywell.com</a></td>
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<td>Question: Who is the chemical treatment company currently servicing this facility?</td>
<td></td>
<td>Answer: San Joaquin Chemical, Inc. Patrick Guzman, Service Technician Diana Acosta <a href="mailto:pdeguzman@sjc-inc.com">pdeguzman@sjc-inc.com</a> Telephone: 1 (800) 647-9577 1-800-647-9577</td>
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<td>Question: Reference Detail E M1.0, Sheet M3.0: Detail E M1.0, Section-B shows 6” deep saddle plates to be bolted using anchor bolts into the side of the concrete piers 4” from the top of the pier.</td>
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one of the cooling tower piers protrudes less than 3" from the roof. The detail will not be able to be installed. Please advise. Additionally, during the pre-job conference, it was stated that no roofing was required / anticipated. The roofing currently proceeds up the sides of these piers. Roofing will need to be considered depending on the solution to this anchorage problem.

**Answer:** Please see the attached updated detail for the mounting of the towers.

**1-13 Question:** The existing concrete pillars supporting the existing cooling tower CT-1 are not tall enough to install saddle plates as shown in details. The pillars are shorter on this tower than the other. Concrete pillars are approximately 3” inches tall on one side and 6” inches tall on the other side. In lieu of side saddle plates, can we extend the top sub plate on each side of the isolator and add mounting holes on top for anchorage. Would this application be acceptable? Please see attached hand sketch of proposed application.

**Answer:** Please see the attached updated detail for the mounting of the tower.

**1-14 Question:** Can you provide the name of the existing controls manufacture, I.E. Climatec, Siemens, Johnson, Carrier or?? We would need this information to be able to provide a Controls proposal for the project and / or address the re-configuration of the existing Building Automation system for the addition of control valves in the system.

**Answer:** The current building automation system/contractor is Honeywell for this building. Refer to the attached sketches for additional information.

**1-15 Question:** Please Confirm that the existing concrete piers as shown on M3.0 detail E/M1.0 are to be reused for the anchorage of the new Cooling Towers.

**Answer:** Confirmed, the existing concrete piers are to be used for the anchorage of the new towers. Refer to sketches for additional information.

**1-16 Question:** Please provide detail for Stainless steel Sheet metal Cap. At the job walk, it was confirmed that this cap does not need weatherproofing. Please confirm and provide a dimensional detail.

**Answer:** The sheet metal cap shall span the width and length of the pier—14’’W x 17’’ L. The contractor shall field verify the final dimensions during construction.

**1-17 Question:** It was determined at the Pre-Bid Meeting that all Crane activities will need to be done after or before normal working hours which are 7am-4pm. Please confirm overtime is the intent.

**Answer:** No Overtime on This Job, plan shifts accordingly.

END OF ADDENDUM
## SPECIFICATIONS

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23 0500   Common Work Results For HVAC
23 0510   Variable Frequency Drives
23 0511   Welding Pressure Piping
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23 0519   Thermometers and Gages for HVAC
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DIVISION 26 – ELECTRICAL

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END OF SPECIFICATIONS
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SECTION 23 6500

COOLING TOWERS

PART 1 – GENERAL

1.01 SECTION INCLUDES
A. Open-circuit, forced-draft, counter-flow cooling towers.

1.02 RELATED REQUIREMENTS
A. Section 23 0513 - Common Motor Requirements for HVAC Equipment.
B. Section 23 0548 - Vibration and Seismic Controls for HVAC.
C. Section 23 0593 - Testing, Adjusting, and Balancing for HVAC.
D. Section 23 2113 - Hydronic Piping.

1.03 REFERENCE STANDARDS
A. ABMA STD 9 - Load Ratings and Fatigue Life for Ball Bearings 2015.
N. CTI STD-111 - Gear Speed Reducers for Application on Industrial Water Cooling Towers; 2009.
P. NEMA MG 1 - Motors and Generators 2017.
1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide rated capacities, dimensions, weights and point loadings, accessories, required clearances, electrical requirements and wiring diagrams, and location and size of field connections. Submit schematic indicating capacity controls.

C. Shop Drawings: Indicate suggested structural steel supports including dimensions, sizes, and locations for mounting bolt holes.

D. Manufacturer’s Certificate: Certify that cooling tower performance, based on ASME PTC 23 meets or exceeds specified requirements and submit performance curve plotting leaving water temperature against wet bulb temperature.

E. Manufacturer’s Instructions: Submit manufacturer’s complete installation instructions.

F. Operation and Maintenance Data: Include start-up instructions, maintenance data, parts lists, controls, and accessories.

G. Warranty: Submit manufacturer’s warranty and ensure forms have been filled out in Owner’s name and registered with manufacturer.

H. Maintenance Materials: Furnish the following for Owner’s use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Fan Belts: One set, matched, for each unit.
   3. Extra Spray Nozzles: One nozzle kits for each cell.
   4. Extra Access Door Gaskets: One for each door.
   5. Extra Valve Seats: One for each make-up valve and control valve.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum twenty years of documented experience and ISO 9001 certification.

B. Installer Qualifications: Company specializing in performing the type of work specified in this section with minimum 30 years of experience and approved by manufacturer.

1.06 REGULATORY REQUIREMENTS

A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Factory assemble entire unit. For shipping, disassemble into as large as practical sub-assemblies so that minimum amount of field work is required for re-assembly.

B. Comply with manufacturer’s installation instructions for rigging, unloading, and transporting units.
1.08 WARRANTY
A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
B. Submit a written warranty executed by the manufacturer, agreeing to repair or replace components of the unit that fail in materials and workmanship within the specified warranty period.
   1. The Entire Unit shall have a comprehensive five (5) year warranty against defects in materials and workmanship from date of shipment.
   2. Fan Motor/Drive System: Warranty Period shall be Five (5) years from date of unit shipment from Factory (fan motor(s), fan(s), fan shaft(s), bearings, mechanical support, sheaves, bushings and belt(s)).

PART 2 - PRODUCTS

2.01 MANUFACTURERS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
   1. Evapco Model LPT-849
   2. BAC Model VTL-272
   3. Marley
   4. Or Equal.

2.02 MANUFACTURED UNITS
1. Provide units for outdoor use, factory-assembled, sectional, vertical discharge, blow through design, with fan assemblies built into pan and casing.

2.03 COMPONENTS
A. Description: Factory assembled and tested, forced draft counterflow cooling tower.
B. Cold Water Basin:
   1. Sloped with depressed section with drain/clean-out connection. Type 304 bolted stainless steel panels and structural members.
C. Casing panels, framework, and fasteners will be constructed of Type 304 stainless steel.
   1. Fans: Forward curved centrifugal type mounted on steel shaft, with belt drive 304 Stainless steel drive shaft
   2. 304 Stainless steel fan wheels with stainless steel clamp on hubs or fans shall be epoxy coated steel construction. The fans shall be factory installed, and statically and dynamically balanced for vibration free operation.
D. Motors and Drives:
   1. Single speed (1800 rpm) mounted on adjustable steel base. Refer to Section 23 0513.
E. Fan Drive System: Belt Drive designed for minimum 150 percent motor nameplate power.

F. Fan Guard: Welded steel rod and wire guard, hot dipped galvanized after fabrication.

G. Distribution Section: Polyvinyl chloride piping header and branches with ABS plastic spray nozzles.

H. Fill:
   1. Polyvinyl chloride plastic with flame spread index of 25 or less, when tested in accordance with ASTM E84.
   2. Fungal Resistance: No growth when tested according to ASTM G21.

I. Drift eliminators shall be constructed entirely of Polyvinyl Chloride (PVC) in easily handled sections. Design shall incorporate three changes in air direction and limit the water carryover to a maximum of 0.001% of the recirculating water rate.

J. Make up float assembly shall be a mechanical brass valve with an adjustable plastic float.

K. Hardware: stainless steel nuts, bolts, washers, and tappers;


2.04 PERFORMANCE REQUIREMENTS

A. Condition 1 Capacity:

B. Water Flow: 728 gpm per tower

C. Entering Water Temperature: 95 degrees F.

D. Leaving Water Temperature: 85 degrees F.

E. Entering Air WB Temperature: 75 degrees F.

F. Electrical Characteristics:
   1. 15 hp.
   2. 460 volts, single phase, 60 Hz.

G. Motor: Refer to Section 23 0513.

H. Condition 2 Capacity:

I. Water Flow: 680 gpm per tower

J. Entering Water Temperature: 85 F

K. Leaving Water Temperature: 78 F

L. Entering Air WB Temperature: 70 F

2.05 ACCESSORIES

A. Vibration Switch: Provide a mechanical local reset vibration switch. The mechanical vibration cutout switch will be guaranteed to trip at a point so as not to cause damage to
the cooling tower. To ensure this, the trip point will be set in a frequency range of 0 to 3,600 RPM and a trip point of 0.2 to 2.0 g’s.

B. 3” Equalizer connection on blank off side of the tower.

PART 3 - EXECUTION

3.01 INSTALLATION
A. Install in accordance with manufacturer’s instructions.
B. Provide the services of the manufacturer's field representative to supervise rigging, hoisting, and installation, allowing for minimum of one eight-hour day per tower.
C. Install tower on structural steel beams as instructed by manufacturer.
D. Install tower on vibration isolators. Refer to Section 23 0548.
E. Connect condenser water piping with flanged connections to tower. Pitch condenser water supply to tower and condenser water suction away from tower.
F. Connect make-up water piping with flanged or union connections to tower. Pitch to tower.
G. Connect overflow, bleed, and drain, to floor drain.

3.02 FIELD QUALITY CONTROL
A. See Section 01 4000 - Quality Requirements, for additional requirements.
B. Provide the services of the manufacturer's field representative to inspect tower after installation and submit report prior to start-up, verifying installation is in accordance with specifications and manufacturer's recommendations.

3.03 SYSTEM STARTUP
A. Start-up tower in presence of and instruct Owner’s operating personnel.

3.04 SCHEDULES
A. See plans for equipment schedule.

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END OF LIST OF DRAWINGS
Existing Honeywell controller, located in the chiller room.
NOTES:
- Connect existing Honeywell controller to new IDEM controller
- Discontinue existing circuit to new IDEM controller
- Discontinue existing control panel connections to new IDEM controller
- New IDEM controller connection to existing honeywell controller

MATCHLINE SEE SHEET M209
MATCHLINE SEE SHEET M212

DISCONNECT & REMOVE EXISTING REHEAT CONTROL VALVE.
INSTALL NEW 2-WAY VALVE CV-450. PROVIDE TRANSITIONS AS REQUIRED.
INLINE FLOW METER FOR HHW USE MANUFACTURER UP & DOWN STREAM DISTANCES.
LOCATION OF HHWS & R TEMP SENSORS.
SEE CONTROL DIAGRAM SPECS & SEQUENCE FOR RETROFIT OF HHW CONTROL SYSTEM.
REPLACE CONTROL ISOLATION VALVES FOR BOILERS 1, 2 & 3.
PROVIDE THERMOSTAT FOR VAV CONTROL.
PROVIDE 8" STAINLESS WALL PLATE TEMPERATURE SENSORS ON EACH WALL AND ACCOMADATING TO SEATING. LOCATIONS TO BE SELECTED BY UCR STAFF AND ENGINEER OF RECORD DURING JOB WALK. AVERAGED TO CONTROL AH-1, 2 & 3.
EXISTING CONDENSER WATER SYSTEM
CONTROL PANEL LAYOUT

FOR REFERENCE ONLY